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# Perils to people and property: Valuation practices in a water world

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## **Abstract**

*Recent international experiences have reinforced the peril to people and property from rising sea levels and associated water events. The related risks, while perhaps more obvious for properties located in coastal regions, can also impact upon inland properties. These risks are slowly influencing changes to planning practices and attitudes. This paper examines these risks from the perspective of land values and identifies the matters, and processes, that should be adopted in valuation practices.*

**Key words:** rising sea levels, flood, storm surge, valuation practices, internet

## **Introduction**

The term 'value' is recognised as being one that is complicated and not easy to define (Wyatt, 2013). This is particularly so in the context of the focus of this paper – that being of the 'water world'. As has been considered by other authors, and is considered here, *water* can be both friend and foe. In respect of property values the impact of water, or closeness to water, and the perils this places on persons and property can lead to decreased values. However, this is not always the position. Conversely, or perhaps that should be perversely, closeness to water in certain circumstances/locations can lead to increased values. The line between being close enough to water but not *too* close is one that is all too easily crossed as residents in the United Kingdom most recently experienced.

Damage can occur as the result of a variety of water events, such as storm surges, tropical cyclones and/or rising sea levels. While adverse water events internationally are becoming more prevalent many of these are unexpected and, therefore, it is suggested, may be almost impossible to factor into valuation processes (rising sea levels perhaps being the exception). However, large volumes of water generally create floods of some size and “... *flood risk is a location-specific factor that is expected to be reflected in property values*” (Turnbull *et al*, 2013). It is for this reason, and with scope limitations in mind, that the paper will consider primarily the specific issue of flood risk. In order to provide context to the discussion, the consideration of relevant issues is undertaken from the perspective of Australian property and Brisbane, Queensland in particular. Nevertheless, the discussion and lessons are relevant internationally and particularly so for coastal lands.

While various factors can lead to or exacerbate flood risk, this paper will focus on the affects of flooding not their cause or the debate surrounding potential causes (Delbridge & Walker, 2014). The paper commences by placing the 'water world' in context and recognises matters relevant for valuation processes and practices. It then considers why risks may change between one water event and the next before considering how water risks may be identified.

The paper concludes by identifying matters that the author submits should be considered in any valuation process irrespective of the underlying legal interest or property type and suggests matters to be articulated in the valuation report. The author's primary purpose is not to provide answers but to stimulate discussion and thinking about water issues by the profession.

### **The 'water world' in context**

The majority of Australia's population - residential properties (being those on which some form of residence is built) and businesses - is located in its coastal fringe, i.e. near the sea. Others are located at or near some other form of waterway, perhaps most notable of these being the rivers through its major cities. It is no surprise therefore that Australia is known for its love of water. That 'love', however, is not always reciprocated. Coastal properties, similarly to other jurisdictions, are at risk from the combined effects of rise sea levels and other events such as storm surges and tidal waves (Strauss *et al*, 2012).

While Australian coastal properties are more at risk from rising sea levels (Mason, 2011), inland properties are not safe from adverse water events. Flood waters, whatever their origin (i.e. storm, rising sea levels or flash flooding (Craddock & Teale, 2014)) can cover vast areas and negatively impact on all parts of life from employment, road use, to shopping and schools (Egan & McGuirk, 2000). However, the risks from flood water generally are not properly recognised (Browne & Hoyt, 2000). This is particularly so when such events do not occur often (Small *et al*, 2013).

The Australian population is *generally* aware of 'natural hazards' and this is assessed by buyers when making their purchase choice (Egan & McGuirk, 2000). Their understanding of water related risks, however, may not be as good. This is reflected internationally where even those living in known flood prone areas, apparently, were unaware of the risk to their property (Eves & Brown, 2002). Consumer understanding generally of flooding as a phenomenon is not accurate (Egan & McGuirk, 2000) and, as was evidenced after the 2010-11 Queensland floods, has not improved (Craddock & Teale, 2014).

In the 2013 Queensland floods, and most recently in the UK, it is noted that many water-affected areas had not previously flooded, or had not flooded for several decades. Many residents, although desiring to be prepared, were caught unawares and with little capacity to resist the water. For example, in the UK while recent 'flood memory' includes the widespread 1998 and 2000 floods, the 2014 floods affected many other parts of the UK. The last floods of a similar magnitude were those of 1947 (Eves & Brown, 2002).

A similar situation arose in floods in the United States where some of the affected areas had a measure of flood mitigation in place that, despite the low lying areas, had prevented previous inundations. This time, however, those mitigation measures failed. A lack of regional mitigation techniques therefore can lead to an increase in the damage from flood waters (Delbridge & Walker, 2014). Their existence, however, does not protect from damage (Eves & Brown, 2002).

With the *changing water landscapes* the task of valuing ‘at risk’ property is not an easy one, as it requires as a preliminary step the identification of the risk. Thereafter the issue becomes one of how water risks should be factored into the property’s value.

### **Valuing ‘at risk’ property**

The new *International Valuation Standards* (‘IVS’) apply from 1 January 2014 (IVSC, 2013). The IVS separately address the general requirements for establishing the scope of the valuation process and the provision of the valuation report. However, both *IVS 101 Scope of Work* and *IVS 103 Reporting* require, *inter alia*, that “[a]ny limitations or restrictions” are particularised and that the extent of the investigations to be undertaken are agreed by the parties beforehand and recorded in the report (IVSC, 2013, p.23 and p.29).

Most importantly both *IVS 101* and *IVS 103* require that “[a]ll assumptions and any special assumptions” made in the valuation process are to be specified in the report (IVSC, 2013, p.23 and p.29). *IVS101* defines *assumptions* and *special assumptions* as:

***Assumptions*** are matters that are reasonable to accept as fact in the context of the valuation assignment without specific investigation or verification. They are matters that, once stated, are to be accepted in understanding the valuation or other advice provided.

A ***special assumption*** is an assumption that either assumes facts that differ from the actual facts existing at the valuation date or that would not be made by a typical market participant in a transaction on the valuation date. (emphasis and underlining added) (IVSC, 2013, p.23).

Additionally to the general IVSs there is a specific standard for real property. *IVS 230 Real Property Interests* provides that in order to comply with the requirements of *IVS 101* above “the following matters shall be considered”:

- *the evidence required to verify the real property interest and any relevant related interests,*
- *the extent of any inspection, responsibility for information on the site area and any building floor areas,*
- *responsibility for confirming the specification and condition of any building,*
- *the extent of investigation into the nature, specification and adequacy of services,*
- *the existence of any information on ground and foundation conditions,*
- *responsibility for the identification of actual or potential environmental risks,*
- *Legal permissions or restrictions on the use of the property and any buildings.* (underlining added) (IVSC, 2013, p.35)

The IVS, however, while addressing the procedures that should be followed in undertaking a valuation do not address the valuation method (Wyatt, 2013). Also, from the perspective of assisting with accounting for water risks, *IVS 230* does not elaborate on what is meant by “*potential environmental risks*”.

Although it is reasonable to conclude that “*potential environmental risks*” will include flood and other water risks, the examples provided of the “*special assumptions*” that IVS 230 identifies as needing to be “*agreed and confirmed in order to comply with IVS 101*” are only stated as being related to completion of a currently uncompleted building or vacation of a previously leased building (IVSC, 2013, p.36). While guidance is provided as to the application of the standards (undertaken by means of technical information papers) this is limited guidance only. For real property the issue of water risk is not addressed specifically; instead general direction is provided in regards to matters affecting certainty (IVSC, 2013A).

Wyatt (2013) includes “*flood risks*” (p. 72) in his “*inspection checklist*” (p.77) as one of the matters that needs to be raised in the valuation process. It is suggested that it would be beneficial to expand the stated examples in IVS 230 to include ‘water risks’ (not just flood specifically) to reinforce that proper inquiry needs to be made of both the property and region. If a risk is not properly identified or inquiries into such matters are excluded from the valuation scope due, for example, to the client’s specific instructions (i.e. because to obtain the information incurs an extra cost) then the final report, although prepared in accordance with the client’s instructions, it is suggested will be flawed.

Egan and McGuirk (2000) identified three variables that primarily impact upon the value of property at risk from flooding as being – “[l]ocal anecdotal understanding of flood impact; [t]ime period since last flood incident; [and the l]evel of lending and existing attitude of lenders” (p.41). The first two are relevant for consideration by this paper, the last being beyond its scope.

The likelihood of flooding will impact upon property values (Farrow & Scott, 2013). In many instances for very severe flooding the risk is 1:100 (Small *et al*, 2013). That is one flood every 100 years. However, when the flood from one 100 year period and that from the next 100 year period occurs within a few years of each other it can appear as though the risk of such flooding has increased. There are two alternatives arising from this scenario – the first is that there will *not* be another flood of this intensity for 100 years. The second is that *yes*, the common risk of more floods of this nature has risen.

As recent experiences reflect, there is generally a lack of understanding of risk. This, in combination with a lengthy lapse of time since the last significant flood events, therefore sees an increased adverse reaction to more recent events (Cradduck & Teale, 2014). It is suggested that this adverse reaction can lead, at least in the short term, to a significant drop in property values in some areas.

Internationally, as the recent disasters in the UK and US reflect, these events are receiving more attention in government policies and actions regarding changes to planning approvals and laws. In Queensland this is seen most recently in proposed changes water management strategies (Newman & McArdle, 2014). These policies, as well as the underlying risk to property from water, are property-specific matters that the need to be considered for their impact on property values (Wyatt, 2013).

### **The changing 'water landscapes'**

The risk to property from flooding can be increased by a variety of factors. These include – the current defences (i.e. levees) reaching the end of their life; a reduction in agricultural lands; an increased run off from developments; the influence of climate change; and a change of water flow caused by defence works in other areas (Eves & Brown, 2002).

The passage of time, i.e. the number of years since the last major flood event, can exacerbate risk and impact upon value. This is because one consequence of lengthy 'dry' spells is that local, and even official, knowledge of previous events dissipates or is discounted. This can be seen, for example, by authorisations for development on what in reality is a flood plain. The construction of dams or other mitigation works can lead consumers erroneously to believe their property is no longer at risk from flood waters (Egan & McGuirk, 2000). Worse still is the perception that if "*flooding were a problem in this area [the LGA] would not have allowed building to have taken place*" (p.41). The risk to property from flooding from works on neighbouring properties or public works or changed public policies are matters that should be noted and considered as *special assumptions*. (IVS 101 and IVS 103)

To put this in context, let us briefly consider the 2010-11 Queensland floods. In 1974 Brisbane was flooded by water from the sky and river, in circumstances exacerbated by Tropical Cyclone Wanda. Businesses and homes were submerged, schools closed and 14 people died. The ongoing adverse affects to the Queensland economy were felt for many months. In the intervening years several mitigation measures were put in place. This included the construction of the Wivenhoe Dam. However, other construction progressed as well. Properties along the river were developed, homes and business built on the 'old' flood plains, and on the river's edge. Grass was covered by concrete and pools constructed on the land between homes and the river. The consequence being that in the 2010+ floods the 'new' dam was not able to cope with the volume of water and the changed built environment caused water to flow into new areas and be trapped there.

Where insurance is available, the risk of flooding will affect property value even if, or perhaps that should be in spite of, government subsidies for that insurance (Turnbull *et al*, 2013). The issue of flood/water risk is a matter that is both "*property specific*" (Wyatt, 2013, p.80) and it is suggested regionally based. Development applications whether lodged before or after recent flood events, even for property not directly affected, are not immune from the new policies/laws or consideration of new material.

As town planning and planners become more aware of the issues arising as a consequence of climate change (Leitch *et al*, 2010) greater consideration is now being given to how related laws regarding planning processes may be applied to reduce the impacts of adverse water events (Bonyhady, 2010). Australian local government authorities are making changes to planning laws and property notifications. This includes designating property as being at 'flood risk' (Deare, 2014). This can impact upon value and insurability of the affected properties.

LGAs are altering their planning processes requiring developers of flood-affected land to comply with additional building requirements (Warringah Council, 2011). This also impacts the application of existing processes. In 2013 the Queensland Planning & Environment Court refused to grant the applicant preliminary approval for a development plan, as it did not address the related water risk, although it was submitted before relevant risk data was available (*Rainbow Shores*, 2013 [360]). More significant are the proposed pre-emptive dam releases that will see early release of waters in an attempt to reduce flood peaks (Newman & McArdle, 2014). Whether this will assist or merely cause other properties to flood will not be tested until the next major flood event.

Two issues of concern arise for valuers. First, the accurate identification of water risks is dependent on third party (usually government) information. This typically is only obtained at a cost and, as will be discussed, may not be accurate or current; or able to be relied upon due to legal disclaimers. Second, the risk needs to be articulated clearly in the valuation report in plain English so the reader understands what that risk is. The latter is, it is suggested, particularly important when the “*typical market participant*” (IVSC, 2013, p.23) for residential property is likely to be a consumer with only an average literacy level (ABS, 2013).

### **How to identify ‘at risk’ property**

As Wyatt (2013) observes “*valuers are market interpreters*” (p.62). For their interpretation to be correct they must have full access to relevant information and must ensure they themselves understand the risks. There is a plethora of means available for valuers to use to gather data regarding potential water risks. These include online tools, which can be assimilated with user owned/located data to analyse other data and/or produce related reports. The issues for data collection are ones of time, cost, accuracy and reliability.

In Australia (Parker *et al*, 2012) and other countries, an array of property data now may be obtained from regulatory bodies and titling office service providers. GIS systems also can be used to ensure data accuracy; enable streamlined delivery (Nyarko & Lemmen, 2008); identify at risk properties (Poompavai & Ramalingam, 2012) and lead to cost savings (Torabi & Kahourizadeh, 2013). Online interactive maps can be accessed, some at cost and others at no cost, from State and LGAs and other providers. Static maps also are available, as are specifically entitled flood searches, although the latter usually are provided only upon payment of a set fee. While some of this data may be predictive to a greater degree it is historical only.

Another issue with this data is that most is only provided under the auspices of very detailed legal disclaimers, which users must agree to in order to access the data. The impact of such disclaimers means that the information is provided by the source at no risk to it but, subject to the wording of the valuation report’s own disclaimers, at the risk of the valuer if blindly accepted as fact. Even in circumstances where the valuer’s liability for any reliance on third party data is appropriately disclaimed, a failure to appropriately identify risks on an ongoing basis could, it is suggested, impact upon future work.

A separate, and perhaps non-obvious, source of data regarding whether a property is at risk from flooding can be seen in the land valuation figure established by a government's land valuation service. The author is aware of changes to at least one Australian land valuation service's policies on mass appraisals whereby property values are being reduced, albeit slightly, to take account of potential flood risk. Searching for and obtaining this data is but one step. Considering the impact of small decreases in values used purely for rating purposes and factoring this into the valuation process is another.

### **Issues for practice**

Despite the risk to coastal properties, rising sea levels appear to have little impact upon property values (Sheehan, 2012). Closeness to water can in fact lead to higher sale prices (Turnbull *et al*, 2013). Damage from flood waters, conversely, will/should impact upon property values (Eves & Brown, 2002). As Turnbull *et al* (2013) note “[u]nlike many other natural disasters, the risk of flooding can be measured. And flood risk typically varies systematically across locations within a single urban area.” (p. 103)

Floods cause damage to property, businesses and peoples' lives (Farrow & Scott, 2013). This includes:

*“the cost of repair and replacement of buildings damaged and destroyed, the cost of damage to building contents, losses of building inventory involving content related to business activities, relocation expense for businesses and institutions, the loss of services or sales, wages loss linked to business income loss, and rental income loss to building owners.”* (p. 2643)

When a 1:100 flood does not occur regularly it is suggested it is difficult to establish how such an event should be incorporated into property valuations. While lessons may be learnt from the successive years' floods of Queensland, with the passage of time these events too will lessen in memory and impact (Eves, 2002). This is confirmed by recent international research that shows the short term negative impact of flooding on property values disappears between four to nine years after a flood event occurred (Atreya *et al*, 2013). The length of time between flood events is relevant but not determinative of the next event. The likely impact of 'public perception' of the land is therefore a factor that should be noted in any report but which may not significantly impact current value.

Other matters are more obvious to note in the report but possibly less easy to address. For example – will proposed flood related planning controls to protect against damage from flood impact on property values? Possibly, however, until those controls are in both established and tested it is suggested that it would be wiser to exercise caution. As Egan and McGuirk (2000) note:

*“the impact upon property values ... would be dependent on the nature of, and the cost relating to, any flood-related planning controls. It is difficult therefore to quantify such impact until such time as final decision is made in relation to any flood-related planning controls ...”* (p.41).



Turnbull *et al's* (2013) results showed that “*flood risks are capitalized into both house prices and liquidity*” (p. 106). Therefore, valuers need to consider the impact that poor liquidity can have on values. This can be difficult when the property in question has not been directly affected by a recent flood but, due to its location in relation to affected properties, it may be slow to sell.

As valuations are used by consumers, businesses and financiers the end result of the process should be a document that can be easily understood irrespective of who is the client. In particular, a valuation report needs to take into account the low level of documentary literacy generally of consumers. (ABS, 2013). The valuation process and the corresponding report, it is suggested, should address *inter alia*:

- The date of the last flood
- If the property was affected
  - And if so to what extent
- If the property is located on or near a flood plain
  - And if ‘near’ the distance from it
- Its height above sea level
- The distance from *any* water course
- Notable construction on adjoining land of any building or other works

While some of these matters are currently addressed in valuations, it is suggested that they could be more prominently and/or simply identified. And that they *must* be included irrespective of a client’s desire to engage in the false economy of not undertaking full searches.

## **Conclusion**

Eves and Brown’s (2002) research indicates that the impact to property values of flooding or location of land in a potential flood area is not consistent. In some areas there will be a decrease in value, in others no change and in the remainder an increase. This will be influenced by the length of time since the last flood event and how significant that event was. This has been confirmed by subsequent research and by the fluctuating property prices experienced across the various areas of greater Brisbane since the 2010-11 floods.

Damage from floods can be caused to those directly in the flood area from the water itself; or indirectly to those both inside and outside the flood area. This indirect loss can arise as a consequence of power outages, poor water or lack of services generally. For those properties not directly in an at risk area, what consideration of these impacts needs to be accounted for in their valuations? While not having an ongoing impact for most residential properties, the consequences for those in rural areas, or for whom their land use is a business, is something that should be addressed.

The overarching concern for the profession is to ensure that their assumptions and calculations are based on current and accurate data; and that their own report disclaimers are effective.

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